QAP2 – Databases

Exercise One – Provinces and Cities

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**Provinces Table**

The Provinces table is structured to capture vital information regarding different regions:

* **Attributes:**
  + **province\_id (Primary Key, INT):** This field serves as the primary key, operating on the INT data type. It uniquely identifies each province entry within the table.
  + **province\_name (VARCHAR):** Represented as a VARCHAR data type, this attribute stores the name of the province, accommodating strings of variable lengths.
  + **country (VARCHAR):** This attribute, also of the VARCHAR data type, holds the name of the country to which the province belongs.

**Cities Table**

The Cities table offers comprehensive insights into urban areas:

* **Attributes:**
  + **city\_id (Primary Key, INT):** Operating as the primary key, this field utilizes the INT data type. It ensures unique identification for each city record in the table.
  + **city\_name (VARCHAR):** Employing the VARCHAR data type, this attribute captures the name of the city, allowing for variable-length strings.
  + **province\_id (Foreign Key referencing Provinces, INT):** This attribute establishes a foreign key relationship with the province\_id field in the Provinces table. It indicates the province to which each city belongs.

**Associations**

The relationship dynamics between the Provinces and Cities tables are outlined as follows:

* **Provinces to Cities:**
  + **Nature:** This connection denotes a one-to-many relationship, originating from Provinces and extending to Cities.
  + **Characteristics:** Each city is associated with a single province, while each province can encompass multiple cities.
* **Cities to Provinces:**
  + **Nature:** This association embodies a many-to-one relationship, originating from Cities and linking back to Provinces.
  + **Characteristics:** Each city is exclusively affiliated with one province, while a province can be home to multiple cities.

